ABSTRACT

The invention concerns an optical transmitter and receiver, and provides an improved timing extraction circuit for use in an optical receiver that uses a clock of a frequency equal to one half the data transmission rate, and a duty cycle deviation handling circuit for use in the optical transmitter and receiver. The timing extraction circuit uses a PLL circuit containing a phase comparator circuit for performing a phase comparison between a data signal of bit rate B (bits/s) and a clock signal of B/2 (Hz) at intervals of 2/B (sec), and comprises: a detection circuit for detecting the absence of an output of phase comparison information from the phase comparator circuit by receiving a data signal of a prescribed pattern; and a control circuit for controlling, upon detecting the absence, the phase of the clock signal in order to maintain synchronization. Based on the result of evaluating the duty cycle between the input data before and after the point at which the PLL circuit is locked, the duty cycle deviation handling circuit controls the data discrimination phase before and after that point.